

Environmental Protection Agency

§ 86.1313–2004

Table N98–2, or substantially equivalent specifications approved by the Administrator, shall be used in exhaust emissions testing. The grade of petroleum fuel used shall be commercially designated as “Type 2–D” grade diesel fuel except that fuel commercially designated as “Type 1–D” grade diesel fuel may be substituted provided that the manufacturer has submitted evidence

to the Administrator demonstrating to the Administrator’s satisfaction that this fuel will be the predominant in-use fuel. Such evidence could include such things as copies of signed contracts from customers indicating the intent to purchase and use “Type 1–D” grade diesel fuel as the primary fuel for use in the engines or other evidence acceptable to the Administrator.

TABLE N98–2

Item		ASTM test method No.	Type 1–D	Type 2–D
Cetane Number		D 613	40–54	40–50
Cetane Index		D 976	40–54	40–50
Distillation range:				
IBP	°F	D 86	330–390	340–400
	(°C)		(165.6–198.9)	(171.1–204.4)
10 pct. point	°F	D 86	370–430	400–460
	(°C)		(187.8–221.1)	(204.4–237.8)
50 pct. point	°F	D 86	410–480	470–540
	(°C)		(210.0–248.9)	(243.3–282.2)
90 pct. point	°F	D 86	460–520	560–630
	(°C)		(237.8–271.1)	(293.3–332.2)
EP	°F	D 86	500–560	610–690
	(°C)		(260.0–293.3)	(321.1–365.6)
Gravity	°API	D 287	40–44	32–37
Total sulfur	pct.	D 2622	0.03–0.05	0.03–0.05
Hydrocarbon composition:				
Aromatics, minimum	pct.	D 5186	8	27
Paraffins, Naphthenes, Olefins		D 1319	1	1
Flashpoint, min.	°F	D 93	120	130
	(°C)		(48.9)	(54.4)
Viscosity	centistokes	D 445	1.6–2.0	2.0–3.2

¹ Remainder.

(b)(3) through (e) [Reserved]. For guidance see § 86.1313–94.

[62 FR 47126, Sept. 5, 1997, as amended at 65 FR 8278, Feb. 18, 2000]

§ 86.1313–2004 Fuel specifications.

Section 86.1313–04 includes text that specifies requirements that differ from § 86.1313–94 and § 86.1313–98. Where a paragraph in § 86.1313–94 or § 86.1313–98 is identical and applicable to § 86.1313–04, this may be indicated by specifying the corresponding paragraph and the statement “[Reserved]. For guidance see § 86.1313–94.” or “[Reserved]. For guidance see § 86.1313–98.”.

(a) *Gasoline fuel.* (1) Gasoline having the following specifications will be used by the Administrator in exhaust and evaporative emission testing of petroleum-fueled Otto-cycle engines, except that the Administrator will not use gasoline having a sulfur specification higher than 0.0045 weight percent. Gasoline having the following specification or substantially equivalent specifications approved by the Administrator, must be used by the manufacturer in exhaust and evaporative testing except that octane specifications do not apply:

Item	ASTM test method No.	Value
(i) Octane, Research, Min.	D2699	93
(ii) Sensitivity, Min.		7.5
(iii) Lead (organic), maximum: g/U.S. gal. (g/liter)	D3237	0.050 (0.013)
(iv) Distillation Range:	D86	
(A) IBP ¹ : °F (°C)		75–95 (23.9–35)
(B) 10 pct. point: °F (°C)		120–135 (48.9–57.2)
(C) 50 pct. point: °F (°C)		200–230 (93.3–110)

Item	ASTM test method No.	Value
(D) 90 pct. point: °F (°C)		300–325 (148.9–162.8)
(E) EP, max: °F (°C)		415 (212.8)
(v) Sulfur, weight pct.	D1266	0.0015–0.008
(vi) Phosphorous, max. g/U.S. gal (g/liter)	D3231	0.005 (0.0013)
(vii) RVP ^{2,3}	D3231	8.7–9.2 (60.0–63.4)
(viii) Hydrocarbon composition:	D1319	
(A) Olefins, max. pct.		10
(B) Aromatics, max. pct.		35
(C) Saturates		Remainder

¹ For testing at altitudes above 1,219 m (4000 feet), the specified range is 75–105 deg. F (23.9–40.6 deg. C).

² For testing which is unrelated to evaporative emission control, the specified range is 8.0–9.2 psi (55.2–63.4 kPa).

³ For testing at altitudes above 1,219 m (4000 feet), the specified range is 7.6–8.0 psi (52–55 kPa).

(2) For engines certified for sale in the 50 United States, “California Phase 2” gasoline having the specifications listed in the table in this section may be used in exhaust emission testing as an option to the specifications in paragraph (a)(1) of this section. If a manufacturer elects to utilize this option, the manufacturer must conduct exhaust emission testing with gasoline having the specifications listed in the table in this paragraph (a)(2). However, the Administrator may use or require

the use of test fuel meeting the specifications in paragraph (a)(1) of this section for certification confirmatory testing, selective enforcement auditing and in-use testing. All fuel property test methods for this fuel are contained in Chapter 4 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996). These requirements are incorporated by reference (see § 86.1). The table follows:

Fuel property	Limit
(i) Octane, (R+M)/2 (min)	91
(ii) Sensitivity (min)	7.5
(iii) Lead, g/gal (max) (No lead added)	0–0.01
(iv) Distillation Range, °F:	
(A) 10 pct. point,	130–150
(B) 50 pct. point,	200–210
(C) 90 pct. point,	290–300
(D) EP, maximum	390
(v) Residue, vol % (max)	2.0
(vi) Sulfur, ppm by wt.	15–40, except that Administrator may use and approve for use, lower ranges where such ranges are consistent with current California requirements.
(vii) Phosphorous, g/gal (max)	0.005
(viii) RVP, psi	6.7–7.0
(ix) Olefins, vol %	4.0–6.0
(x) Total Aromatic Hydrocarbons (vol %)	22–25
(xi) Benzene, vol %	0.8–1.0
(xii) Multi-Substituted Alkyl Aromatic Hydrocarbons, vol %	12–14
(xiii) MTBE, vol %	10.8–11.2
(xiv) Additives	See Chapter 4 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996). These procedures are incorporated by reference (see § 86.1).
(xv) Copper Corrosion	No. 1
(xvi) Gum, Washed, mg/100 ml (max)	3.0
(xvii) Oxidation Stability, minutes (min)	1000
(xviii) Specific Gravity	No limit; report to purchaser required
(xix) Heat of Combustion	No limit; report to purchaser required
(xx) Carbon, wt %	No limit; report to purchaser required
(xxi) Hydrogen, wt %	No limit; report to purchaser required

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(3)(i) Unless otherwise approved by the Administrator, unleaded gasoline representative of commercial gasoline that will be generally available through retail outlets must be used in service accumulation. Unless otherwise approved by the Administrator, this gasoline must have a minimum sulfur content of 15 ppm. Unless otherwise approved by the Administrator, fuel used for evaporative emission durability demonstration must contain ethanol as required by § 86.1824–01(a)(2)(iii). Leaded gasoline must not be used in service accumulation.

(ii) Unless otherwise approved by the Administrator, the octane rating of the gasoline used must be no higher than 1.0 Retail octane number above the lowest octane rating that meets the fuel grade the manufacturer will recommend to the ultimate purchaser for the relevant production vehicles. If the manufacturer recommends a Retail octane number rather than a fuel grade, then the octane rating of the service accumulation gasoline can be no higher than 1.0 Retail octane number above the recommended Retail octane number. The service accumulation gasoline must also have a minimum sensitivity of 7.5 octane numbers, where sensitivity is defined as the Research octane number minus the Motor octane number.

(iii) The Reid Vapor Pressure of the gasoline used must be characteristic of the motor fuel used during the season in which the service accumulation takes place.

(4) The specification range of the gasoline to be used under paragraph (a) of this section must be reported in accordance with § 86.094–21(b)(3).

(b) heading and (b)(1) [Reserved]. For guidance see § 86.1313–94.

(b)(2) [Reserved]. For guidance see § 86.1313–98.

(b)(3) through (g) [Reserved]. For guidance see § 86.1313–94.

[66 FR 5178, Jan. 18, 2001]

§ 86.1313–2007 Fuel specifications.

Section 86.1313–2007 includes text that specifies requirements that differ from § 86.1313–94 and § 86.1313–2004. Where a paragraph in § 86.1313–94 or § 86.1313–2004 is identical and applicable to § 86.1313–2007, this may be indicated by specifying the corresponding paragraph and the statement “[Reserved]. For guidance see § 86.1313–94.” or “[Reserved]. For guidance see § 86.1313–04.”.

(a) [Reserved]. For guidance see § 86.1313–2004.

(b) heading and (b)(1) [Reserved]. For guidance see § 86.1313–94.

(b)(2) Petroleum fuel for diesel engines meeting the specifications in Table N07–2, or substantially equivalent specifications approved by the Administrator, shall be used in exhaust emissions testing. The grade of petroleum fuel used shall be commercially designated as “Type 2-D” grade diesel fuel except that fuel commercially designated as “Type 1-D” grade diesel fuel may be substituted provided that the manufacturer has submitted evidence to the Administrator demonstrating to the Administrator’s satisfaction that this fuel will be the predominant in-use fuel. Such evidence could include such things as copies of signed contracts from customers indicating the intent to purchase and use “Type 1-D” grade diesel fuel as the primary fuel for use in the engines or other evidence acceptable to the Administrator. (Note: Vehicles certified under § 86.007–11(f) must be tested using the test fuel specified in § 86.1313–2004, unless otherwise allowed by the Administrator.) Table N07–2 follows: